DOCUMENT RESUME

ED 110 645 CE 004 432

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TITLE	Changes in Students' Attitudes as Measured by a Semantic Differential Instrument; Employer-Based Career Education; Technical Report No. 39.
INSTITUTION	Appalachia Educational Lab., Charleston, W. Va.
SPONS AGENCY	National Inst. of Education (DHEW), Washington, D.C.
REPORT NO	TR-39
PUB DATE	Sep 73
CONTRACT	NE-C-00-4-0008
NOTE	32p.; For related documents, see CE 004 429-431 and CE 004 433-438
EDRS PRICE	MF-$0.76 HC-$1.95 Plus Postage
DESCRIPTORS	Attitude Tests; *Career Education; Changing Attitudes; Demonstration Programs; Educational Programs; Evaluation; Individualized Programs; Pilot Projects; Rating Scales; Secondary Education; Secondary School Students; Self Concept; *Semantic Differential; Standardized Tests; *Student Attitudes; Student Characteristics; Tables (Data); Testing; *Test Results; *Work Experience Programs
IDENTIFIERS	Appalachia Educational Laboratory; EBCE; *Employer Based Career Education

ABSTRACT

The report evaluates attitudinal changes among the 44 Appalachia Educational Laboratory's Employer-Based Career Education (AEL/EBCE) students during the 1972-73 academic year, as measured by the semantic differential, a test in which students were asked to select one of seven spaces separating bipolar adjectives for each of 20 pairs of adjectives describing nine different concepts or abstractions. Students examined at the beginning of their involvement in the program (Group One beginning in September 1972 and Group Two beginning in January 1973) indicated a positive attitude to only one concept, education; all other concepts were viewed as neutral. The data also indicated that the attitudes of Group One students remained fairly stable during the year. A comparative analysis of the Group One and Group Two students showed that none of the group main effects were statistically significant on any of the nine concepts, and that although some group by adjective interaction effects were found, none were meaningful in terms of the questions for which answers were sought. Of the report's three appendixes, one reproduces the semantic differential test instrument, and two provide statistical tables depicting analyses of variance for the test concepts. (Author/JR)

ED106645

Employer-Based Career Education

TR 39

Changes in Students' Attitudes as Measured by a Semantic Differential Instrument

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CE004432

Cover picture: Sam Burge, an EBCE student learns the fundamentals of operating a television camera at WMUL-TV in Nitro, West Virginia

Employer-Based Career Education

Changes in Students' Attitudes as Measured by a Semantic Differential Instrument

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TECHNICAL REPORT NO. 39

RESEARCH AND EVALUATION DIVISION
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Preface

The following report is one of a series resulting from the evaluation of the Employer-Based Career Education (EBCE) program as conducted by the Appalachia Educational Laboratory, Inc., from September, 1972, through May, 1973. The EBCE program has been designed as an educational alternative to conventional high schools through which students learn from planned experiences at employer sites as well as through individually guided academic exercises.

The focus of this report is the changes in attitude toward certain concepts by the students in the EBCE program. A semantic differential was designed and used as an attempt to measure changes in attitude during this first test year for the AEL/EBCE program.

The data were analyzed and the report was written by Dr. James T. Ranson of the West Virginia College of Graduate Studies under contract to the Laboratory. Dr. James H. Sanders was responsible for conducting and supervising the evaluation, including the design of the instrument. Summative evaluation at the Laboratory is under the general direction of Dr. Charles L. Bertram, Director of Research and Evaluation.

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Introduction

The purpose of this report is to document the evaluation of attitudinal changes in subjects who participated in the Employer-Based Career Education (EBCE) program at Appalachia Educational Laboratory, Inc. during the 1972-73 academic year. This purpose is in response to the need for the EBCE program developers to have pertinent information on which to make decisions related to the EBCE program.

The setting of the AEL/EBCE program is in the Charleston, West Virginia, metropolitan area. Participants in the AEL/EBCE program were high school seniors from the Kanawha County school system.

The 42 students were in two different groups of 21 each. One group (Group I) participated in the program during the entire 1972-73 academic year, and the other group (Group II) participated during the second semester of the 1972-73 academic year. Group II originally contained 23 students, but 21 students were randomly selected for data analysis so that the two groups would contain an equal number of students. Of the 42 students for whom data were analyzed, 11 were girls and 31 were boys.

The purpose of this evaluation was to monitor the attitudes of the subjects as they progressed through the AEL/EBCE program. This purpose seemed particularly relevant since the assumption was made that any significant change in cognitive traits would also show up in affective areas as well.

The Design

As indicated earlier two groups of 21 pupils were the data sources for this evaluation. The two groups differed mostly by the length of time

which they participated in the EBCE program. The sequence of EBCE treatment and testing periods is diagramed in Figure 1.

Treatment	Autumn Testing September 1972	Winter Testing February 1973	Spring Testing May 1973
Group I	O_1 ⊢ EBCE ⊣ O_2	⊢ EBCE ⊣ O_3	
Group II	⊢ No exposure ⊣ O_4	⊢ EBCE ⊣ O_5	

Figure 1

Diagram of the Treatment and Testing Periods of the Students in the EBCE Program

As indicated in Figure 1, Group I was tested three times--September, 1972, February, 1973, and May, 1973; and Group II was tested two times--February, 1973, and May, 1973. Given these conditions, the following questions provided direction to the investigation:

1. What were the attitudes of the pupils toward identified school, community, and career education concepts at the beginning of the EBCE program?
2. How did the attitudes held by the students at the beginning of the program compare with the attitudes held at midyear and at the termination of the program?
3. How did the attitudes of the group of pupils who entered the program at midyear compare with the attitudes of the pupils who had been in the program since the beginning of the academic year?

The Measure

The testing procedure used to measure the attitudes of the pupils was the semantic differential (SD). The SD is a product of research under the direction of Charles E. Osgood[1] on the measurement of meaning. A set of bipolar adjectives divided by seven spaces is the response setting for the subject, and when the adjectives are so organized that the respondent associates the adjectives with the concept, an attitude measurement can be obtained. The AEL/EBCE semantic differential was designed by Dr. James H. Sanders according to procedures described by Kerlinger.[2] The instrument is attached as Appendix A.

One purpose of the semantic differential is to measure some of the attitudes which respondents hold about abstract ideas on concepts. This purpose is accomplished by having the respondent to place a check mark in one of seven spaces which separate the bipolar adjectives.

In this study, nine different concepts or abstractions were used and the students checked each of the same 20 bipolar adjectives for each concept. Most of the bipolar adjectives (15 of 20) have been validated by Osgood, but others were added in order to produce a more efficient measure of attitude. The use of this semantic differential during the 1972-73 academic year was the first use, and any findings are therefore considered provisional.

The nine concepts were:

(1) My chances for success in life are:

(2) My future career plans are:

---

[1]Charles E. Osgood, George J. Suri, and Percy H. Tannenbaum. The Measurement of Meaning. (Urbana: University of Illinois Press, 1957, 1965).

[2]Fred N. Kerlinger. Foundations of Behavioral Research. (New York: Holt, Rinehart and Winston, Inc., 1967), p. 564-580.

(3) My responsibility to the governance of my community is:

(4) Education is:

(5) I am

(6) The recreation facilities available to me in my community are:

(7) The social contributions of my community to my well being are:

(8) All occupations are:

(9) My contributions to my community are:

The 20 bipolar adjectives were:

(1) Wise - foolish
(2) Valuable - worthless
(3) Good - bad
(4) Weak - strong
(5) Consistent - inconsistent
(6) Fair - unfair
(7) Progressive - traditional
(8) Complete - incomplete
(9) Meaningful - meaningless
(10) Successful - unsuccessful
(11) Important - unimportant
(12) Encouraging - discouraging
(13) Interesting - boring
(14) Clear - hazy
(15) Clean - dirty
(16) Relaxed - tense
(17) Beautiful - ugly
(18) Sharp - dull
(19) Powerful - weak
(20) Colorful - colorless

The respondent is asked to place a check mark on one of the seven spaces between each adjective. Each space is assigned a number, i.e., 1, 2, 3, 4, 5, 6, 7, depending where it is located between the adjectives. The space located next to the positive pole in the adjective pair is designated "7" and the number next to the negative pole is "1". The unit of measure is therefore a "1" through "7" with "7" being the most positive and "1" being the most negative.

The preponderance of the data that have been generated about the SD suggest three primary factors make up the meaning space of adjectives.[1,2] These three factors, which were identified by Osgood through a factor analysis procedure, were designated evaluative, potency, and activity. These same data also suggest that in general the evaluative factor is usually the strongest factor, and eight of the 20 adjective pairs had been identified as evaluative in other studies. One preliminary assumption of this study is that the adjectives as a whole are evaluative in nature.

Results

Initial Student Attitude

The first question was, "What was the general nature of the attitudes of the pupils at the beginning of the EBCE program?" To arrive at an answer to this question, an assumption was made that "4" on the seven point scale indicated a neutral attitude toward a concept, and that variation from a "4" indicated a positive or negative attitude. Given this assumption, the error term of the F-ratio for testing the statistical significance of the differences for the three testing periods was used as an estimate of the variance of the meaning space in the population. Another assumption was that the mean semantic differential score for the Autumn testing was an estimate of the strength of meaning for the sample. Given these assumptions, a probability level of .05 (two-tailed test) was used to define a region of rejection for the hypotheses that the observed means were equal to "4". The results of this analysis are presented in Table 1. The only concept of the nine which was determined to be other than neutral was Concept No. 4, "Education is". The mean for this

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[1]Kerlinger, p. 567.

[2]Osgood, p. 36-38.

concept was 5.52 which indicated a positive attitude toward education held by the pupils at the beginning of the program.

Table 1

Means, Variances, Regions of Rejection and Decisions Concerning the Meaningfulness of Nine Concepts for Group I Autumn Test Results

Concept*	$\bar{X}$	S^2	Region of Rejection**	Meaningful
1	5.04	10.12	$2.56>\bar{X}>5.44$	No
2	5.31	11.18	$2.49>\bar{X}>5.51$	No
3	4.24	8.93	$2.65>\bar{X}>5.35$	No
4	5.52	10.86	$2.51>\bar{X}>5.49$	Yes
5	4.86	9.70	$2.59>\bar{X}>5.41$	No
6	3.79	13.78	$2.32>\bar{X}>5.68$	No
7	4.10	15.42	$2.23>\bar{X}>5.77$	No
8	4.86	5.39	$2.95>\bar{X}>5.05$	No
9	4.34	9.16	$2.63>\bar{X}>5.37$	No

*Concept identification: (1) Chances for success, (2) career plans, (3) responsibility to governance of community, (4) education, (5) myself, (6) recreation facilities, (7) social contributions of my community, (8) occupations, and (9) my contribution to my community.

**Two-tailed test $p < .05$.

In the preceding discussion the means were compared with an external value, namely, the value of "4" because the assumption was made that "4" indicated a neutral attitude. For the ensuing discussion the comparison will

be based on internal criteria using the mean scores to determine whether any significant attitudinal differences existed among the nine concepts. To make this comparison, the variances used in the error terms of the F-ratio to test differences across the three testing periods were pooled and used as the variance estimate for the "q"-statistic. No statistically significant differences emerged as a result of this analysis. Therefore, at the Autumn observation period the subjects held no differential attitudes with respect to the nine concepts.

Change in Attitude

The second question was, "How did the attitudes held by the students at the beginning of the program compare with the attitudes held at midyear and at the termination of the program?" To arrive at an answer to this question a "treatment by treatment by subject" analysis of variance was conducted on Group I data. The first "treatment" was the three observation periods--Autumn, Winter, and Spring, and the second "treatment" was the set of 20 bipolar adjectives. The ANOVA summary table is included as Appendix B. The semantic differential means for the three observation periods, the F-test of the means for each of the nine concepts, and the probability associated with each F-test are given in Table 2. Figure 2 graphically depicts the means for the three testing periods and the nine concepts. Although all but one of the attitudes appeared to become more positive between Autumn and Spring testing, none of the F-tests were statistically significant using a criterion probability of .05. The positive change in Concept No. 9, "My contributions to my community are", was significant at the .10 level and would provide some evidence that the EBCE program participants began to regard their role in their community more positively. In general, the attitudes of Group I students remained fairly stable during the year.

Table 2

Means of the Concepts of Group I across the Three Observation Periods, F-Ratios, and Levels of Significance

Concept*	Fall	Winter	Spring	F	P
1	5.04	5.27	5.36	1.17	NS
2	5.31	5.22	5.45	0.47	NS
3	4.24	4.46	4.64	1.91	NS
4	5.52	5.05	5.16	2.31	NS
5	4.86	4.75	5.04	0.92	NS
6	3.79	3.70	4.12	1.50	NS
7	4.10	4.04	4.44	1.28	NS
8	4.86	4.80	5.12	2.29	NS
9	4.34	4.49	4.80	2.44	0.10

*Concept identification: (1) Chances for success, (2) career plans, (3) responsibility to governance of community, (4) education, (5) myself, (6) recreation facilities, (7) social contributions of my community, (8) occupations, and (9) my contribution to my community.

Comparison of Group I and Group II Attitudes

The third question was, "How did the attitudes of Group II students who entered the program at midyear compare with those of Group I students who participated in the program for the entire academic year?" To arrive at an answer to this question a mixed model analysis of variance design was used. This ANOVA design controlled for group differences, Winter and Spring testing periods, and the 20 adjective pairs. The group main effects and the group by testing period interaction were of interest in comparing the two groups across the two testing periods.

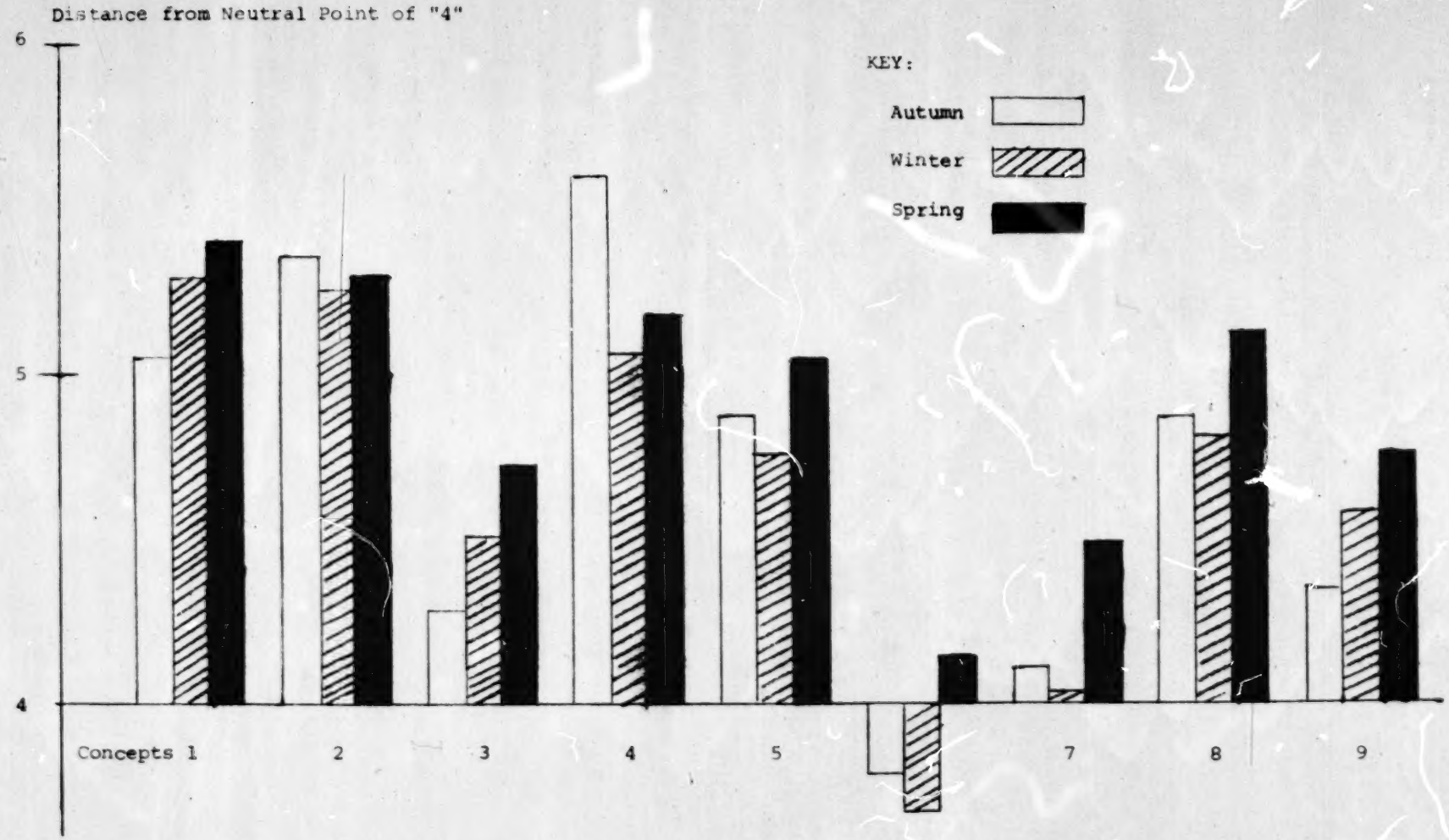

Figure 2

Comparison Mean Scores on the Nine Concepts of the Semantic Differential according to the Autumn, Winter, and Spring Testing Periods for Group I

The group main effect was a test on the pooled Winter and Spring means for Group I and Group II. None of the group main effects were statistically significant on any of the nine concepts. The pooled Winter and Spring means, the F-ratios, and the probability levels for each of the nine concepts are presented in Table 3.

Table 3

Pooled Winter and Spring Means for Group I and Group II, F-Ratios and Probability Levels for Difference between Groups

Concept*	Group I	Group II	F-Ratio	P
1	5.32	5.34	0.01	NS
2	5.33	5.39	0.06	NS
3	4.55	4.70	0.19	NS
4	5.11	5.39	1.03	NS
5	4.90	5.19	1.13	NS
6	3.92	4.13	0.32	NS
7	4.24	4.48	0.51	NS
8	4.96	4.79	0.47	NS
9	4.64	4.61	0.02	NS

*Concept identification: (1) Chances for success, (2) career plans, (3) responsibility to governance of community, (4) education, (5) myself, (6) recreation facilities, (7) social contributions of my community, (8) occupations, and (9) my contribution to my community.

After evaluating the group main effect, the group by testing period interaction for each of the nine concepts was evaluated. The means for Group I and Group II at the Winter and Spring testing periods, the group

by testing period interaction, F-ratio, and the probability levels are given in Table 4. None of the interaction effects with the exception of Concept No. 9 were statistically significant.

Concept No. 9 was specifically "My contributions to my community were". This concept had a statistically significant interaction ($p < .03$) which was apparently due to a reversal in attitude at the Spring testing. At the Winter testing Group II had a more positive attitude than did Group I, and at the Spring testing, Group I had a more positive attitude than did Group II.

The differences between the means for Group I and Group II at the Winter and Spring testing periods is also presented in Table 4. With the assumption that the error value for the group by period interaction was a variance estimate of differences between the two means, the critical region for the differences between the means was calculated and yielded no differences which were statistically significant at the .05 level (two-tailed test). Based on the statistical analyses, no significant differences were found between Group I and Group II in relation to the two testing periods.

Other statistically significant findings did emerge in the analysis. One such finding concerned group by adjective interactions on concepts 1, 2, 4, 7, and 8. In concept 1 ("My chances for success") the two groups rated the good-bad" and the "strong-weak" differently with Group I expressing a stronger negative reading than Group II on these two bipolar adjective pairs. This finding could be quite significant because these two adjective pairs measure strength of meaning about a concept.

The adjectives main effect was statistically significant in the analyses for each of the nine concepts. The adjectives were selected to assess the attitudes of the participants in the program. Probably the most useful method

Table 4

Group I and Group II Means and Mean Differences for Winter and Spring Testing Periods with F-Ratios and Probability Levels for Group by Testing Period Interactions

Concept	Winter			Spring				
	Group I	Group II	Difference*	Group I	Group II	Difference*	F-Ratio**	P**
1	5.27	5.36	0.09	5.36	5.33	0.03	0.17	NS
2	5.22	5.43	0.21	5.45	5.35	0.10	0.96	NS
3	4.46	4.79	0.33	4.61	4.61	0.03	1.55	NS
4	5.05	5.42	0.37	5.16	5.36	0.20	0.31	NS
5	4.75	5.20	0.45	5.04	5.18	0.14	1.79	NS
6	3.70	4.06	0.36	4.12	4.60	0.48	0.74	NS
7	4.04	4.51	0.47	4.44	4.45	0.01	1.60	NS
8	4.80	4.77	0.03	5.12	4.81	0.31	1.69	NS
9	4.49	4.80	0.31	4.80	4.42	0.38	4.81	0.03

*Based on the assumption that the denominator of the F-ratio was a valid variance estimate, the calculated t-test for the difference between means indicated that none of the differences between groups were statistically significant.

**For group by testing period interaction.

for analyzing and interpreting the adjectives would be to conduct a factor analytic study to isolate common variance among the adjectives; however, this type of analysis is beyond the scope of this study.

Summary and Implications

Assuming that the middle space in the seven space scale of the bipolar adjectives is indicative of meaninglessness, i.e., a neutral position, the only concept which was meaningful at the beginning of the year was "Education is". Subsequent analysis indicated that no change occurred across the three testing periods except for the students' attitude toward their community which became progressively and significantly more positive with succeeding testing periods. No differences between Group I and Group II were detected. Some group by adjective interaction effects were found, but were not meaningful in terms of the questions for which answers were sought.

The purpose of this study was to monitor the attitudes of the participants in the AEL/EBCE program during the 1972-73 academic year. The attitudes do not appear to have been affected either for good or bad. In fact, the attitudes remained constant in Group I during the year, and Group II which entered at midyear was equal to Group I for the period of time which they were in the program.

Education appears to be the most meaningful of the nine concepts which were used. The positive attitude recorded at the first of the year remained high throughout the program. This could indicate that the pupils enter school with a high degree of motivation and expectation. However, these conclusions warrant more investigation before they can be taken very seriously.

Appendix A

Semantic Differential

Name _____ Age _____ Sex _____

DIRECTIONS

1. This survey is to let you describe how you feel or what you think.

2. Show what you think about the concept (phrase) on the top of each page by placing an "X" in one of the seven blanks between each set of adjectives (from very good to very bad).

3. Use only one mark for each pair of adjectives, but each pair should have one mark.

4. There are no right or wrong answers. Your first thought is usually the best one to record.

Example:

Please react to the concept:

ICE CREAM

Good ___ ___ ___ ___ ___ ___ ___ Bad

You might have reacted to the concept ICE CREAM in one of seven ways. The following illustrates the seven different ways you might have marked with an interpretation of each alternative.

Good								Bad
Very Good	X							
Moderately Good		X						
Somewhat Good			X					
So-So or Maybe no Meaning				X				
					X			Somewhat Bad
						X		Moderately Bad
							X	Very Bad

MY CHANCES FOR SUCCESS IN LIFE ARE:

wise	___	___	___	___	___	___	___ foolish
valuable	___	___	___	___	___	___	___ worthless
good	___	___	___	___	___	___	___ bad
weak	___	___	___	___	___	___	___ strong
consistent	___	___	___	___	___	___	___ inconsistent
fair	___	___	___	___	___	___	___ unfair
progressive	___	___	___	___	___	___	___ traditional
complete	___	___	___	___	___	___	___ incomplete
meaningful	___	___	___	___	___	___	___ meaningless
successful	___	___	___	___	___	___	___ unsuccessful
unimportant	___	___	___	___	___	___	___ important
discouraging	___	___	___	___	___	___	___ encouraging
interesting	___	___	___	___	___	___	___ boring
hazy	___	___	___	___	___	___	___ clear
dirty	___	___	___	___	___	___	___ clean
relaxed	___	___	___	___	___	___	___ tense
ugly	___	___	___	___	___	___	___ beautiful
sharp	___	___	___	___	___	___	___ dull
weak	___	___	___	___	___	___	___ powerful
colorful	___	___	___	___	___	___	___ colorless

MY FUTURE CAREER PLANS ARE:

wise	___	___	___	___	___	___	___ foolish
valuable	___	___	___	___	___	___	___ worthless
good	___	___	___	___	___	___	___ bad
weak	___	___	___	___	___	___	___ strong
consistent	___	___	___	___	___	___	___ inconsistent
fair	___	___	___	___	___	___	___ unfair
progressive	___	___	___	___	___	___	___ traditional
complete	___	___	___	___	___	___	___ incomplete
meaningful	___	___	___	___	___	___	___ meaningless
successful	___	___	___	___	___	___	___ unsuccessful
unimportant	___	___	___	___	___	___	___ important
discouraging	___	___	___	___	___	___	___ encouraging
interesting	___	___	___	___	___	___	___ boring
hazy	___	___	___	___	___	___	___ clear
dirty	___	___	___	___	___	___	___ clean
relaxed	___	___	___	___	___	___	___ tense
ugly	___	___	___	___	___	___	___ beautiful
sharp	___	___	___	___	___	___	___ dull
weak	___	___	___	___	___	___	___ powerful
colorful	___	___	___	___	___	___	___ colorless

MY RESPONSIBILITY TO THE GOVERNANCE OF MY COMMUNITY IS:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

EDUCATION IS:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

I AM:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

THE RECREATION FACILITIES AVAILABLE TO ME IN MY COMMUNITY ARE:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

THE SOCIAL CONTRIBUTIONS OF MY COMMUNITY TO MY WELL BEING ARE:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

ALL OCCUPATIONS ARE:

wise	___	___	___	___	___	___	___	foolish
valuable	___	___	___	___	___	___	___	worthless
good	___	___	___	___	___	___	___	bad
weak	___	___	___	___	___	___	___	strong
consistent	___	___	___	___	___	___	___	inconsistent
fair	___	___	___	___	___	___	___	unfair
progressive	___	___	___	___	___	___	___	traditional
complete	___	___	___	___	___	___	___	incomplete
meaningful	___	___	___	___	___	___	___	meaningless
successful	___	___	___	___	___	___	___	unsuccessful
unimportant	___	___	___	___	___	___	___	important
discouraging	___	___	___	___	___	___	___	encouraging
interesting	___	___	___	___	___	___	___	boring
hazy	___	___	___	___	___	___	___	clear
dirty	___	___	___	___	___	___	___	clean
relaxed	___	___	___	___	___	___	___	tense
ugly	___	___	___	___	___	___	___	beautiful
sharp	___	___	___	___	___	___	___	dull
weak	___	___	___	___	___	___	___	powerful
colorful	___	___	___	___	___	___	___	colorless

MY CONTRIBUTIONS TO MY COMMUNITY ARE:

wise	___	___	___	___	___	___	___ foolish
valuable	___	___	___	___	___	___	___ worthless
good	___	___	___	___	___	___	___ bad
weak	___	___	___	___	___	___	___ strong
consistent	___	___	___	___	___	___	___ inconsistent
fair	___	___	___	___	___	___	___ unfair
progressive	___	___	___	___	___	___	___ traditional
complete	___	___	___	___	___	___	___ incomplete
meaningful	___	___	___	___	___	___	___ meaningless
successful	___	___	___	___	___	___	___ unsuccessful
unimportant	___	___	___	___	___	___	___ important
discouraging	___	___	___	___	___	___	___ encouraging
interesting	___	___	___	___	___	___	___ boring
hazy	___	___	___	___	___	___	___ clear
dirty	___	___	___	___	___	___	___ clean
relaxed	___	___	___	___	___	___	___ tense
ugly	___	___	___	___	___	___	___ beautiful
sharp	___	___	___	___	___	___	___ dull
weak	___	___	___	___	___	___	___ powerful
colorful	___	___	___	___	___	___	___ colorless

Appendix B

F-Ratios and Levels of Significance for Group I Analysis of Variance by Their Testing Periods and Twenty Adjectives

F-Ratios and Levels of Significance for Group I Analysis of Variance by Their Testing Periods and Twenty Adjectives

Concepts*	Period	Adjective	Period x Adjective
Concept 1	-	5.48, p<.0001	-
Concept 2	-	8.09, p<.0001	-
Concept 3	-	2.49, p<.001	
Concept 4	-	14.08, p<.0001	1.52, p<.05
Concept 5	-	3.68, p<.0001	2.17, p<.001
Concept 6	-	1.75, p<.05	-
Concept 7	-	3.16, p<.0001	-
Concept 8	-	9.07, p<.0001	-
Concept 9	2.44, p<.10	2.62, p<.001	-

*Concept identification: (1) Chances for success, (2) career plans, (3) responsibility to governance of community, (4) education, (5) myself, (6) recreation facilities, (7) social contributions of my community, (8) occupations, and (9) my contribution to my community.

Appendix C

F-Ratios and Levels of Significance for Main Effects and Interactions of Two Groups Over Two Testing Periods

F-Ratios and Levels of Significance for Main Effects and Interactions of Two Groups Over Two Testing Periods

Concepts*	Group	Period	Adjective	Group x Period	Group x Adjective	Period x Adjective	Group x Period x Adjective
Concept 1	-	-	9.28, p<.001	-	1.75, p<.05	-	-
Concept 2	-	-	10.39, p<.001	-	1.86, p<.05	-	-
Concept 3	-	-	3.99, p<.001	-	-	-	-
Concept 4	-	-	19.23, p<.001	-	2.11, p<.01	2.11, p<.01	-
Concept 5	-	-	6.26, p<.001	-	-	2.26, p<.01	-
Concept 6	-	-	3.66, p<.001	-	-	1.76, p<.05	-
Concept 7	-	-	4.87, p<.001	-	1.63, p<.05	-	-
Concept 8	-	2.92, p<.10	11.89, p<.001	-	1.49, p<.10	-	-
Concept 9	-	-	3.49, p<.001	4.81, p<.05	-	-	-

*Concept identification: (1) Chances for success, (2) career plans, (3) responsibility to governance of community, (4) education, (5) myself, (6) recreation facilities, (7) social contributions of my community, (8) occupations, and (9) my contribution to my community.

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